

Student Name:

Student id:

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University of Bahrain

Department of Computer Science

College of Information Technology

ITCS332: Concepts of Programming Languages

QUIZ#2: Chapter 3_Syntax

QUESTION 1: Construct the grammar (BNF rules) to define a **program** structure. The program starts by left brace { followed by one or more **in** statements and terminated by right brace }. An **in** statement is a keyword **in** followed by >> followed by one or more variables separated by >> and terminated by \$. A variable is a letter followed by one or more letters or digits. Example of accepted programs: { in >> v45 \$ in >> xyz >> t7g \$ in >> f \$ }

<program> → { <ins> }

<ins> → <in> | <in> <ins>

<in> → in >> <vars> \$

<vars> → <var> | <var> >> <vars>

<var> → <let> | <var> <dig> | <var> <let>

<dig> → 0|1|2|3|4|5|6|7|8|9

<let> → A|B|...|Z|a|b...|z

QUESTION 2: Construct ONE syntax graph for the following two rules.

<Xs> → <X> { ** <X> }

<X> → dog { ?? cat }

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QUIZ#2: Chapter 3_Syntax

QUESTION 1: Construct the grammar (BNF rules) to define a **program** structure. The program starts by **begin** followed by one or more **out** statements terminated by **end**. An **out** statement is a keyword **out** followed by the operator **<<** followed by one or more numbers separated by **<<** and terminated by **#**. A number is one or more decimal digits. Example of accepted programs: *begin out << 39 # out << 234 << 567# out << 8 end*

<program> → begin <outs> end
<outs> → <out> | <out> <outs>
<out> → out << <nums> #
<nums> → <num> | <num> << <nums>
<num> → <dig> | <num> <dig>
<dig> → 0|1|2|3|4|5|6|7|8|9

QUESTION 2: Construct ONE syntax graph for the following two rules.

<Xs> → <X> | <X> ?? <Xs>
<X> → cat | <X> ** dog